

Lakowicz et al., "Intrinsic fluorescence from DNA can be enhanced by metallic particles", *Biochem. Biophys. Res. Comm.* 286, 875 (2001); Gryczynski et al., "Multiphoton excitation of fluorescence near metallic particles: enhanced and localized excitation", *J. Phys. Chem. B*, 106, 2191 (2002)). In these reports, researchers used the fluorophores (mostly organic laser dyes) to visualize or test the SPR-enhanced interactions. Their studies show that the fluorescence intensity of the fluorophores located nearby metal nanoparticles can be enhanced by a factor as high as  $\sim 10^4$  with one-photon mode of excitation and  $\sim 10^8$  with two-photon mode of excitation, and Raman signal for fluorophores which are in contact with metal nanoparticle can be enhanced by  $\sim 10^{14}$  (M. Moskovits: *Rev. Mod. Phys.* 57, 783 (1985); T.L. Haslett, L. Tay, M. Moskovits: *J. Chem. Phys.* 113, 1641 (2000), and references therein; K. Kneipp, Y. Wang, H. Kneipp, L.T. Perelman, I. Itzkan, R.R. Dasari, M.S. Feld: *Phys. Rev. Lett.* 78, 1667 (1997); Gryczynski et al., "Multiphoton excitation of fluorescence near metallic particles: enhanced and localized excitation", *J. Phys. Chem. B*, 106, 2191 (2002)). The observed SPR-enhanced interaction of metal nanoparticles with fluorophores was also associated with intense decomposition of fluorophores when fluorophores were at a distance of 20 nm or less from metal nanoparticles (Ditlbacher H. et al., *Appl. Phys. B* 73, 373-377 (2001)).

The present invention expands the above scientific findings to provides a novel methodology, a new composition, and new applications that are based upon on the surface plasmon resonance (SPR)-enhanced interactions of nanoparticles embedded into a material body with the nearby biological and chemical substances, and with the material body. a new method of a The surface plasmon resonance enhanced interactions of metal nanoparticles with biological substances and/or chemical substances that leads to biochemical/biophysical modifications or destruction of biological substances in the body. Biological substances considered in this invention are: a

biomolecule, bacteria, living tissue, cells, virus, human body, animal body, and other living biological species.

In the CLAIM section.

Applicant amended the Claim section in compliance with 37 CFR 1.121. Applicant amended claims 1-7, 9-10, 16-20 that find basis in the original specification, and cancelled claims 8, 11-15. Applicant used the proper status identifier of each claim as was indicated by the Examiner in the Notice of Non-Complaint. No new matter has been inserted into the amended claims. The amended claims and a clean copy of the pending claims are shown on the following pages.